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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,596	08/20/2001	Henry Johnson	H0001719 (4960)	6853

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EXAMINER

DINH, TUAN T

ART UNIT PAPER NUMBER

2827

DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/933,596

Applicant(s)

JOHNSON ET AL.

Examiner

Tuan T Dinh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to because “**cross-hatching** does not shown in each figure of the drawings”. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Examiner requests applicant submitted all of the figures of the drawings to show cross-hatchings of the claim subject matter, the cross-hatching has to show all of the material features of the drawings, see **MPEP 608.02**, for example, dielectric substrate, copper layer...etc.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 6, line 3, applicant should clarifies what is a unit of the first or second structure diameter is 150 microns, is this in meter or inches?

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Lubert et al. (U. S. Patent 6,291,779).

As to claim 1, Lubert discloses an electronic device as shown in figures 1-11 comprising:

a dielectric substrate (3, column 5, lines 14-15) having first surface and second surfaces (21, 23, figure 1, column 5, lines 64-65), and a via (5, column 6, lines 11, 58) connecting the first and second surfaces, wherein the via has a horizontal cross sectional area (internal walls 9-see figures 3-11);

a first and a second sacrificial copper structure (29, column 6, lines 22-26) deposited to the first and second surfaces (21, 23) and surrounding the via (5), respectively, wherein each of the first and second sacrificial copper structures (29)

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covers an area of no more than three times the horizontal cross sectional area of the via (see figures 5-11); and

wherein the first and second sacrificial copper structures (29) are formed on the substrate via a photolithographic process (column 8, lines 9-14).

As to claim 2, Lubert discloses an electronic device as shown in figures 1-11 wherein the substrate comprises a wiring board (column 1, lines 5-8).

As to claim 3, Lubert discloses an electronic device as shown in figures 1-11 wherein the first and second surfaces (21, 23) of the dielectric material comprise a copper layer (first and second metallized surfaces).

As to claim 4, Lubert discloses an electronic device as shown in figures 1-11 wherein the via (12) has a via surface, and wherein the via surface (9) comprises copper.

As to claim 5, Lubert discloses an electronic device as shown in figures 1-11 wherein the copper of the via surface and the first and second sacrificial copper structure are formed in a single process (column 6, lines 11-62).

As to claim 6, Lubert discloses an electronic device as shown in figures 1-12 wherein the via has a via diameter (see figure 3), wherein the first and second sacrificial copper structures (29) have first and second structure diameters, respectively. and at least one of the first and second structure diameters are 150 microns larger than the via diameter (see column 6, lines 25-50).

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As to claims 7 and 8, Lubert discloses an electronic device as shown in figures 1-11 further comprising a via fill material (11, column 7, lines 15-20, column 8, line 9) which is a resin disposed within the via (see figures 4-11).

As to claim 9, Lubert discloses an electronic device as shown in figures 1-11 wherein the via fill material is further disposed on the substrate in an area other than the via (see figures 4-11), and further comprising a photoresist layer (31, column 9, lines 29-30)) between the first surface and the via fill material.

As to claim 10, Lubert discloses an electronic device as shown in figures 1-11 wherein each of the first and second sacrificial copper structures (29) covers an area of no more than two times the horizontal cross sectional area of the via.

Response to Arguments

6. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Alpaugh et al., Carpenter et al., Howell et al., and Glenn et al. Disclose related art.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856.

The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD

October 8, 2002.

Albert W. Paladini 10-6-02

**ALBERT W. PALADINI
PRIMARY EXAMINER**